

Mathematical Colloquia

Monday, 24. September 2018

17:15 h, Lecture Room B 78

Prof. Dr. Pierre Le Boudec, University of Basel

On the Hasse principle in families of Diophantine equations

Abstract:

The question of determining whether a given Diophantine equation has a solution in integers or rational numbers is a central topic in Number Theory. It is a complicated problem in general as it is known that there is no algorithm which can answer this question. An obvious necessary condition for the existence of such a solution is the existence of a solution in real numbers and of solutions modulo every prime powers. In the case where this condition is also sufficient, the Diophantine equation is said to satisfy the Hasse principle. Since this necessary condition can be checked in a finite number of steps, it is interesting to find out whether a Diophantine equation satisfies the Hasse principle or not. In this talk, I will give an introduction to these topics and I will mention some recent work investigating what can be said about this problem if one works with families of Diophantine equations instead of a single equation.